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Spadicoides subsphaerica sp. nov. from Connecticut

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Abstract — *Spadicoides subsphaerica*, a new dematiaceous hyphomycete species is described and illustrated from a specimen collected from Hamden, CT.

Key Words — anamorphic fungi, saprobe, taxonomy

Introduction

The genus *Spadicoides* was erected by Hughes (1958), as typified by *S. bina* (Corda) S. Hughes [as '*binum*'] with six species accepted. The genus is characterized by distinct, single, unbranched, brown conidiophores with polytretic, integrated conidiogenous cells, solitary apical and lateral conidia, and minute pores visible on conidiogenous cells where conidia have developed and been released (Hughes 1958, Ellis 1971, Sinclair & Bhat 1985, Goh & Hyde 1996). Goh and Hyde (1996) reviewed the genus and accepted 21 species. Since the review, several additional species have been proposed: *Spadicoides arengae*, *S. bambusicola*, *S. hodgkissii*, *S. mauritiana*, *S. minuta*, *S. palmicola*, and *S. versiseptatis* (Cai et al. 2004, Dulymamode et al. 1999, Goh & Hyde 1999, Ho et al. 2002, Wong et al. 2002, Zhou et al. 1999).

A specimen collected from dead wood at the Lockwood Farm of The Connecticut Agricultural Experiment Station in Hamden, CT was found to be of an undescribed species of *Spadicoides,* which is described and illustrated in this paper.

Materials and methods

Conidiophores and conidia of the fungus were lifted with 2 × 3 mm transparent tape 600 (3M Co., St. Paul, MN) and mounted in lacto-fuchsin (0.1 g acid fuchsin, 100 ml 85% lactic acid) or 85% lactic acid (Carmichael 1955). Microscopic observations were made using bright field and Nomarski differential interference contrast optics. Photomicrographs were taken with an

Olympus Microfire digital camera (Goleta, CA). Herbarium acronyms follow Index Herbariorum (Holmgren & Holmgren 1998).

Results

Spadicoides subsphaerica D.W. Li, **anam. sp. nov.** FIGURES 1–8

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Conidiophora macronemata, mononematica, solitaria, determinata, erecta, simplicia, non-ramosa, 39–77(105) µm longa, (2.5–)2.7–3.1(–3.2) µm lata, 3–7-septata, laevia, brunnea; cellulae conidiogenae polytreticae, terminales et intercalares, integratae, poris manifestis praeditae. Conidia unicellularia, solitaria, subsphaerica vel ellipsoidea, brunnea, laevia, (3.3–)3.8–4.6(–5.4) × (3.2–)3.5–4.1(–4.3) µm. Teleomorphosis ignota.

TYPE: **UNITED STATES. CONNECTICUT**, Hamden, Lockwood Farm, superficie in ligno. Coll. 5 viii 2009, BPI 879604 (**holotype**).

ETYMOLOGY: referring to the subglobose conidial shape.

Conidiophores differentiated, single, determinate, erect, unbranched, straight, dark brown, smooth, 3–7-septate, thick-walled, (38–)39–77(–105) (mean = 58 ± 19, n = 20) × (2.5–)2.7–3.1(–3.2) µm (mean = 2.9 ± 0.2, n = 20), more or less uniform in width, occasionally slightly enlarged at apex, upper half fertile and paler; apical cell (4.2–)6.4–9.0(–10) (mean = 7.7 ± 1.3, n = 20) × (2.5–)2.8–3.2(–3.5) µm (mean = 3.0 ± 0.2, n = 20). Conidiogenous cells integrated, terminal and intercalary, polytretic, leaving visible minute clear pores after conidial secession. Conidia apical and lateral, unicellular, single, subglobose, globose, or broadly ellipsoidal, brown to dark brown, smooth, thick-walled, with an occasionally visible, minutely protuberant clear pore at the base (3.3–)3.8–4.6(–5.4) (mean = 4.2 ± 0.4, n = 30) × (3.2–)3.5–4.1(–4.3) (mean = 3.8 ± 0.3, n = 30) µm, Q = 1–1.2(–1.5) (mean = 1.1 ± 0.1, n = 30).

TELEOMORPH: unknown.

KNOWN GEOGRAPHICAL DISTRIBUTION: Connecticut, USA.

HABITAT: saprotrophic on dead wood of ?*Quercus* sp.

Discussion

Several *Spadicoides* species develop 1-celled conidia: *S. arengae* W.H. Ho et al. ex L. Cai et al., *S. atra* (Corda) S. Hughes, *S. cuneata* Kuthub. & Nawawi, *S. macrocontinua* Matsush., *S. minuta* L. Cai et al., *S. sphaerosperma* McKenzie,

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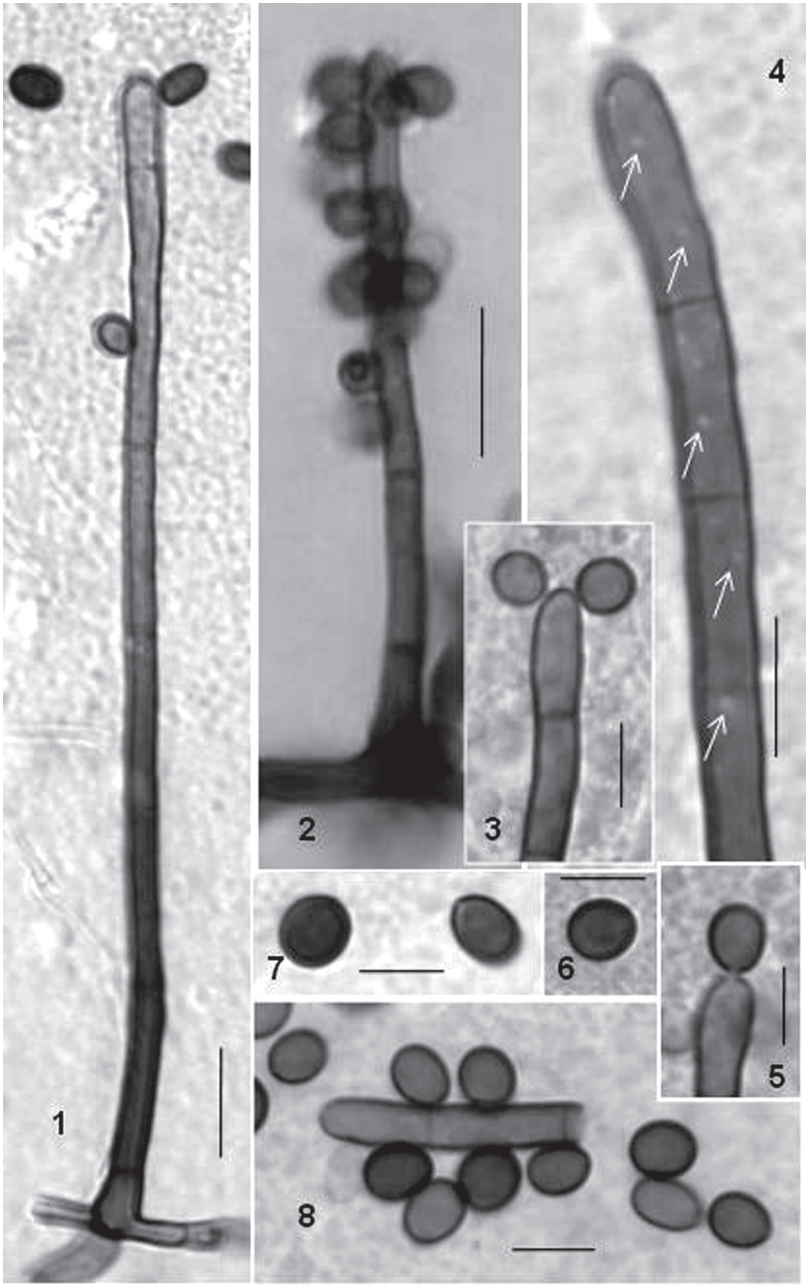
FIGURES 1-8. *Spadicoides subsphaerica*. 1-2. Conidiophore and conidia. 3. Apical portion of a conidiophore with lateral conidia. 4. Conidiogenous pores shown by arrows. 5. Conidium at apex of a conidiophore. 6-7. Thick-walled conidia. 8. Conidia and apical portion of a conidiophore.
Scale bars: 1-2 = 10 µm, 3-8 = 5 µm.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and *S. verrucosa* V. Rao & de Hoog. *Spadicoides subsphaerica* is characterized by small conidia (3.3–5.4 × 3.2–4.3 µm), which are brown to dark brown, subspherical or ellipsoidal, and smooth, one or more of which characters separate it from the other species. Species that develop much larger and differently shaped conidia include *S. arengae* (11–18 × 4–6 µm, ellipsoid), *S. cuneata* (9–12 × 6–8 µm, cuneiform), *S. macrocontinua* (13.5–22 × 7–9 µm, obovoid), and *S. sphaerosperma* (6–7 µm, globose) (McKenzie 1982, Matsushima 1995, Goh & Hyde, 1996, Dulymamode et al. 1999, Ho et al. 2002). *Spadicoides atra*, *S. minuta,* and *S. verrucosa* develop conidia that overlap those of *S. subsphaerica* in size. However, *S. verrucosa* has verrucose, ellipsoidal conidia 4–5.5 × 2–3 µm (Goh & Hyde 1996), and the conidia of *S. atra* are oblong, ellipsoidal to obovoid, and 4–6.5 × 3–4 µm (Corda 1840, Matsushima 1975). *Spadicoides minuta* has subhyaline to hyaline, ellipsoidal to broadly ellipsoidal conidia with mucronate ends that measure 3–6 × 2.5–3.5 µm.

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